in raising those amounts in London, either by the generosity of its rich men or by grants from public funds, if only those interested in the making of a University would combine their efforts towards a common end. The task was rendered easier by the fact that in the building of the University they could utilise for University purposes in London many of the buildings and endowments already existing, and it was in the hope of inaugurating a common movement in that direction that University College had declared itself ready to be incorporated in the University.

SCIENTIFIC SERIALS.

Transactions of the American Mathematical Society, vol. iii. No 2, April.—E. W. Brown, on the small divisors in the lunar theory.—J. W. Young, on the holomorphisms of a group. This deals with non-abelian groups such that there is a one-one correspondence between the elements of the group and their αth powers.—F. R. Moulton, a simple non-desarguesian plane geometry. A simpler system than that given by Hilbert in his "Grundlagen der Geometrie," with a proof that his axioms I. 1–2, II., III., IV. 1–5, V. are fulfilled, while Desargues' theorem is not true.—M. Bôcher, on the real solutions of systems of two homogeneous linear differential equations of the first order. Propositions relating to $y' = \mathrm{P}y - \mathrm{Q}z$, $z' = \mathrm{R}y - \mathrm{S}z$ analogous to those given by Sturm for $y'' + py' + qy = 0$.—Charlotte A. Scott, on a recent method of dealing with the intersections of plane curves. The method in question is that of F. S. Macaulay (*Proc.* L.M.S. vols. xxxi., xxxii.).—E. V. Huntington, a complete set of postulates for the theory of absolute continuous magnitude. Six postulates are laid down, and shown to be consistent and independent of each other. A short paper by the same author follows, on the postulates for the theories of positive integral and positive rational numbers.

Bulletin of the American Mathematical Society, second series, vol. viii. No. 8, May.—C. J. Keyser, concerning the angles and the angular determination of planes in 4-space.—D. R. Curtiss, note on the sufficient conditions for an analytic function.—Reviews:—Scheffer's "Theory of Surfaces," by J. M. Page; "Some Recent Books on Mechanics," by E. B. Wilson; "The Galois Theory in Burnside and Panton's Theory of Equations"; and shorter notices.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 20.—"On a Peculiarity of the Cerebral Commissures in certain Marsupialia, not hitherto recognised as a Distinctive Feature of the Diprotodontia," by Prof. G. Elliot Smith, M.D., Ch.M. Communicated by Prof. G. B. Howes, F.R.S.

It has been known for a considerable time that some of the fibres of the ventral commissure of the cerebrum in certain marsupials, instead of passing bodily into the *external* capsule, form an aberrant bundle, which associates itself with the *internal* capsule so as to reach the dorsal area of the neopallium by a shorter and slightly less circuitous course.

This peculiarity has been recorded by the late W. H. Flower, by Johnson Symington and by Theodor Ziehen in Macropus, Phascolomys, Aepyprymnus, Phascolarctus and the Derbian Wallaby, and in Phalangista by myself.

In 1894 I showed that while in the monotreme and Perameles the common mammalian relationship of the ventral commissure to the external capsule was found to obtain, in Trichosurus and Macropus some fibres of the ventral commissure were found to pursue the aberrant course indicated above. It was perhaps not unnatural to suppose that the increased size of the neopallium in these two genera was wholly responsible for the presence of this aberrant bundle; for it seemed that since the commissural fibres of the neopallium had become too abundant to be wholly accommodated by the path provided by the external capsule, they, so to speak, had overflowed into the internal capsular route.

Upon examining later a much larger series of marsupials, I soon became convinced that the explanation of the causation of this peculiarity which I then suggested could not be regarded as alone sufficient. I found the aberrant bundle in all members of the genera Macropus, Halmaturus, Hypsiprymnus, Dendrolagus, Trichosurus, Petaurus, Phascolarctus and Phascolomys, quite irrespective of the size of the brain and extent of the neopallium; but I sought it in vain in Perameles, Sarcophilus, Dasyurus, Sminthopsis, Didelphys, Myrmecobius, and Notoryctes, even though many of these genera possess larger brains than some Diprotodonts.

These facts seemed to suggest that the aberrant bundle was a distinctive feature of the Diprotodont marsupials, and it appeared that the crucial test of this hypothesis would be afforded by the brain of Thylacinus, which, although that of a Polyprotodont, is almost, if not quite, as large as the brain of the largest Macropod. I accordingly submitted the cerebrum of Thylacinus to the test, and found no trace of the aberrant bundle, wherefore it is clear that the presence of this aberrant fasciculus of the ventral commissure is distinctive of the Diprotodontia.

The most pronounced growth tendency in the earliest mammals must have been an enormous increase in extent of the neopallium, for while at the beginning of the Eocene period this was almost as insignificant as it is in the Reptilia, in most recent mammals it attains a bulk which far exceeds that of the whole of the rest of the nervous system. This sudden expanse of the neopallium would lead to the development of an enormous mass of fibres which must find some outlet from the pallium; and there are only three possible routes for commissural fibres of the neopallium to the mesial plane. There is first the external capsule, which chiefly consists in all mammals of such fibres passing to the ventral commissure; we find the second route in the path mapped out by the internal capsule from the dorsolateral neopallial area to it; and the third route can only involve the invasion of the alveus of the hippocampus.

All the neopallial commissural fibres in the Polyprotodontia and *some only* of these in the Diprotodontia and Eutheria follow the first route. The commissural fibres, which spring from the dorso-lateral region of the neopallium in the Diprotodontia, crowded out of the first route pursue the second. In the Eutheria the neopallial commissural fibres from the dorso-lateral region of the hemisphere forsake both the first and second routes and invade the alveus, so as to form a new dorsally situated neopallial commissure, which is the corpus callosum.

This hypothesis of the origin of the corpus callosum I have previously stated and discussed; and I refer to the matter now merely to point out that the same determining cause which in the Eutheria calls the "corpus callosum" into being is probably functional in bringing into existence the "aberrant bundle" in the Diprotodontia.

The development of any such commissural mass as the corpus callosum of the more highly organised Mammalia in the position occupied by its homologous fibres in the monotremes and marsupials would cause the most profound disruptions of the corpus striatum, optic thalamus, and the basal region of the brain, and the complete disorganisation of its whole; and hence the new course taken by its fibres in the Eutheria.

May 15.—"Cyanogenesis in Plants. Part II.—The Great Millet, *Sorghum vulgare*," by Wyndham R. Dunstan, M.A., F.R.S., Director of the Scientific Department of the Imperial Institute, and T. A. Henry, D.Sc. Lond.

May 29.—"On the Structure of the Gills of the Lamellibranchia," by Dr. W. G. Ridewood. Communicated by E. Ray Lankester, M.A., F.R.S.

This paper records the results of an investigation undertaken at the instance of Prof. E. Ray Lankester, F.R.S., and carried on under his supervision. 215 species of Lamellibranchia, belonging to 118 genera, were examined. The results demonstrate that although the minute structure of the gill, like the grosser structure, cannot be taken as a criterion of genetic affinity, three main types of structure can be recognised, representing apparently three grades of complexity.

The first type is distinguished by the mutual freedom of the gill leaflets into which the embryonic gill papillæ expand. In the other two types the embryonic papillæ elongate into filaments, which are held in juxtaposition by interlocking cilia, or by horizontal bars of cellular tissue.

Evidence is produced to show that Pelseneer's order Pseudolamellibranchia is based largely on a misconception of the relative value of the flatness or plication of the gill lamellæ, and the presence or absence of principal filaments.

In the family Solenidæ particularly it is shown that different species and subgenera of the same genus may have their gill lamellæ flat or plicate, and the filaments all of one kind or with enlarged principal filaments at intervals.

Avicula argentea proved to be a form of supreme interest, in that both ciliated discs and organic interfilamentar junctions are present.

Anomia aculeata is of no less interest, since it differs from the other species of Anomia examined, and resembles the rare Dimya, in that the gill filaments are not reflected.

The gills of Vesicomya and Euciroa, which were said by Dall to exhibit close resemblances with those of the Protobranchia, prove to be of the reticulate type.

The forms included by Pelseneer in his order Septibranchia are, at least so far as can be judged by their branchial organs, degenerate molluscs of the Lyonsiella type, and the suppression of the Septibranchia as a distinct order is advocated.

Entomological Society, May 7.—The Rev. Canon Fowler, president, in the chair.—Mr. H. W. Shepheard-Walwyn exhibited a gynandromorphous specimen of *Anthocaris cardamines*, taken near Winchester in 1899. The left side was that of a normal ♂, the right that of a normal ♀, with the exception of a splash of orange pigment on the underside of the primary.—Mr. H. Goss exhibited two ♂ specimens of *Saturnia carpini* from Essex, bred on whitethorn, and three ♂♂ of the same species caught in Surrey by the aid of bred (virgins) ♀♀. He remarked that as a rule bred specimens were smaller than wild, but the bred Essex specimens were much larger than those captured in Surrey. The Essex specimens were light in colour, while the Surrey specimens were not only much smaller in size, but very dark, probably because their larvæ had fed upon Erica or Calluna.—Colonel C. Swinhoe announced the emergence of *Cossus ligniperda* in the Zoological Society's Gardens from a pupa received in a piece of wood from South Africa, and said that it was remarkable that the species should have been introduced there and then brought back to Great Britain.—Prof. E. B. Poulton exhibited two Euplœinæ captured in Fiji by Prof. Gilson, and presented by him to the Hope Department. The species, which belonged to the different genera Nipara and Deragena, bore the closest superficial resemblance to each other, affording an interesting example of Müllerian or synaposematic likeness.—Prof. Poulton also exhibited several specimens of *Smerinthus populi* which had been exposed during the pupal stage to the intense heat of July, 1900. In consequence of this "forcing," the moths emerged towards the end of that month, and were markedly different in colour from the normal, being much paler in tint with less distinct markings, and the red of the hind wings of a very different shade.—The Rev. A. E. Eaton exhibited drawings illustrating the wing of *Pampterinus latipennis*, Etn. MS., a remarkable dipterous fly of the family Psychodidæ, from New Guinea, in the collection of the Hungarian National Museum, Budapest.—Prof. L. C. Miall, F.R.S., contributed a paper on a new Cricket of aquatic habits found in Fiji by Prof. Gustave Gilson, Dr. T. A. Chapman a paper on asymmetry in the males of Hemarine and other Sphinges, and Mr. E. Meyrick a paper on Lepidoptera from the Chatham Islands.

Geological Society, May 14.—Prof. Charles Lapworth, F.R.S., president, in the chair.—Pliocene glacio-fluviatile conglomerates in Subalpine France and Switzerland, by Mr. Charles S. Du Riche Preller. In the present paper the author describes a number of further deposits of typical Deckenschotter conglomerate recently examined in the Aare and Rhine valleys, near the confluence of those rivers, and shows that these, in conjunction with the Deckenschotter deposits of the Zurich district, indicate the almost unbroken outline of a Subalpine Deckenschotter cone, which extended from the base of the Alps in a north-westerly direction over a distance of about 25 miles, and was formed by the waters of the retreating Rhine (western) glacier and its affluents on a Molasse plateau, the upper and lower ends of which were at the contours of 900 metres and 500 metres respectively. He further describes a series of Deckenschotter deposits examined in the Rhone valley between Lausanne and Lyons, including the extensive plateau of the Dombes, east and north of Lyons, composed of marine marl overlain by the characteristic *conglomérat ferrugineux*, which some French geologists still regard as pre-Glacial and others as Quaternary, but which is typical Deckenschotter, and in the full acceptation of the term an *alluvion des plateaux*. The deposits thus described afford proof of the existence, in Upper Pliocene times, of an extensive alluvial cone about 100 miles in length, which reached from Lausanne (probably even from the base of the Alps) to Lyons, and was formed by the waters of the retreating Rhone and Arve glaciers on a Molasse-and-marl plateau, the altitude of which above sea-level was 800 metres near Lausanne and 300 metres near Lyons. From this concurrent evidence in northern Switzerland and in the Rhone valley, the author is led to conclude that at the time of the deposition of those alluvial cones, the principal Subalpine valleys and lake-basins could not as yet have existed in their present form or depth, and must have been from 100 to 200 and 400 metres higher; and that the Subalpine valleys were eroded to their present depth in the course of the inter-Glacial period—now recognised to have been of very long duration—between the Pliocene and the Middle Pleistocene (or maximum) glaciations, and that the Subalpine lake-basins were formed in the same period by the contemporaneous action of fluviatile erosion and of a zonal settling along the base of the Alps after these had been raised by horizontal pressure.—Overthrusts and other disturbances in the Braysdown Colliery (Somerset), and the bearing of these phenomena upon the effects of overthrust-faults in the Somerset coalfield in general, by Mr. F. A. Steart. This coalfield, although covered by comparatively undisturbed Secondary rocks, is in part the most disturbed and contorted of those known and worked in the United Kingdom. The "Radstock Seams" of the Upper Coal-measures at Radstock are traversed by a huge "overlap fault," which thrusts them forward for a great distance; this runs nearly east and west, and has parallel to it two smaller overthrusts. In one of them the coal at first dips towards the thrust, then it thickens from 2 to 6 or 8 feet, next it becomes inverted, and eventually regains its former character. The continuity of the coal has been proved in the case of three of the coal-veins. As there is practically the same sequence of strata on both sides of the fault, it is concluded that the "overthrusts" did not take place until all the coal-seams of the Radstock series had been deposited.

Royal Microscopical Society, May 21.—Dr. Hy. Woodward, F.R.S., president, in the chair.—Mr. T. W. Ersser brought for exhibition a new acetylene illuminator for the lantern which he said would give a light of 300 candle power for three hours at a cost of ninepence.—Mr. D. J. Scourfield gave an exhibition of freshwater Entomostraca. He confined himself to the Cladocera and to the illustration of their various habits of life and powers of movement, ranging from the free-swimming forms found in lakes to those which simply crawled in or on the mud. Most of the living specimens were shown in live boxes, but one specimen was attached to a pin by means of a small drop of sealing wax varnish, which permitted the creature to carry on all its movements without getting out of the field of view. A number of living and mounted specimens were exhibited under microscopes.

CAMBRIDGE.

Philosophical Society, May 19.—Prof. Macalister, president, in the chair.—Some observations on protandry and senescence in Flabellum, by Mr. J. Stanley Gardiner.—A note on the dispersive power of running water on skeletons: with particular reference to the skeletal remains of *Pithecanthropus erectus*, by Mr. W. L. H. Duckworth. This communication consisted in an account of the distribution of the bones of the skeleton of a horse along the bed of a mountain stream in North Wales. It was observed that the distance over which distribution had occurred was at least one hundred and fifty-three feet. This observation was applied to the case of the fossil bones found in a river bank in Java and described by their discoverer as those of an animal more closely allied to man than is any known ape and called *Pithecanthropus erectus*. One objection to this description rests on the fact that the two bones on which our knowledge of that animal is based were separated by a distance of nearly forty-nine feet, though on the same level. The present observation goes to show that this objection is not valid, inasmuch as the larger bones here mentioned were distributed over a considerably greater distance than forty-nine feet, by a stream of small dimensions.—The coral reefs of Zanzibar, by Mr. C. Crossland. The paper shows that the fringing reef which extends along the whole eastern or ocean side of Zanzibar Island is not due to recent growth, but is the result of the eroding action of the sea upon the margin of the mass of elevated coral limestone which forms this side of the Island. The edge of the flat thus formed is protected by living organisms from further erosion, though no addition to the reef results for them. The only recently formed rocks which occur are (1) coral and nullipore growths in the boat channel, (2) the beginnings of new reefs round certain shoals and islands off the west coast. Zanzibar thus affords a comparison with the Bermudas, where the same cause, marine erosion, acting upon a differently formed but physically similar limestone, has produced a semblance, not merely of fringing reefs, but a "pseud-atoll."—On an attempt to detect the ionisation of solutions by the action of light and Röntgen rays, by Mr. J. A. Cunningham.—On the influence of molecular attraction on collisions, by Mr. O. W. Richardson. This paper is an extension of the method used by Sutherland (*Phil Mag.* [5] xxxvi. p. 507) to explain the variation of vicosity of gases with temperature. Its use is further illustrated by calculating the rate of recombination of X-ray ions in air.—On the influence of ultra-violet radiation on the discharge in a vacuum tube having a polished zinc electrode, by Mr. W. C. Baker.—On the variation of double refraction in strained glass with wave-length, by Mr. L. N. G. Filon.

Edinburgh.

Royal Society, May 19.—Prof. Duns in the chair.—Mr. R. C. Mossman, in a note on the meteorological conditions accompanying "föhn" and up-bank thaws in Glen Nevis, gave an account of some observations he had made last winter, when he had carried out a series of hourly readings of temperature, pressure and humidity at the head of Glen Nevis. On certain occasions he found the air in the glen to be much warmer and drier than at Fort William, the barometer also being higher. The barometric gradient was from east to west, so that the air was drawn away from the base of the mountain and replaced by air from higher altitudes. Excursions were made on the surrounding hills during the föhn, which was found to extend to a height of 2000 feet. The weather was very fine, but a somewhat similar phenomenon was found in rainy weather. A number of cases of up-bank thaw were also described. In these the temperature, which normally falls as the height increases, is higher at the higher altitudes. For example, on February 1, at 10 a.m., the temperature on the top of Ben Nevis was 20°·4 F. higher than in the Glen. The phenomenon was explained as due to the sliding of the cold air down the hillsides into the valleys, which, because of the freer radiation during intense frost, become colder than the hillsides.—Mr. Mossman also read a paper on the meteorology of Edinburgh, in which he brought down his previously published historical record to the end of the last century. The present communication covered the ten years from 1891 to 1900. The paper also dealt with epidemics in relation to the weather from 1497, and with wheat prices from 1801.—Prof. A. Smith, in a paper on the influence of varying temperature and pressure on the vapour density of calomel vapour, sought to distinguish whether the vapour of calomel under ordinary conditions contains $HgCl$ or Hg_2Cl_2 in addition to mercury and mercuric chloride, the presence of which has been demonstrated definitely although their quantity is unknown.—Two communications were also received from Dr. Thomas Muir, on vanishing aggregates of secondary minors of a persymmetric determinant, and on the theory of orthogonants in the historical order of its development up to 1854.

Dublin.

Royal Dublin Society, May 21.—Prof. T. Johnson in the chair.—Dr. W. E. Adeney read a paper on the chemistry of respiration in bacteria. The experiments described in this communication have been made with a view of gaining some information as to the actual course of respiration within the protoplast. The course of physiological oxidation has been studied by determining the atmospheric oxygen consumed, the carbon dioxide formed, and also the ammonia formed, during different stages of fermentation, from commencement to completion, in very dilute unsterilised distilled water solutions of asparagine, of albumose and of Rochelle salt, these substances being selected on account of the simple nature of the result, of their aërobic fermentation. The asparagine was found to be quickly hydrolysed during the earlier stages of the fermentation into ammonia and aspartic acid, the last-named substance then undergoing complete oxidation in regular gradations, the final amounts of carbon dioxide and ammonia formed accounting for about 70 per cent. of the carbon and 85 per cent. of the nitrogen originally present in the asparagine. The course of oxidation of the albumose took place in approximately regular gradations throughout the course of fermentation, and is graphically represented by an approximately straight line, both when the carbon dioxide formed is taken against the oxygen consumed and when it is taken against the ammonia which is also formed in the process of oxidation. The course of oxidation of the asparagine, after being hydrolysed into aspartic acid, is also graphically represented by an approximately straight line, whether the carbon dioxide formed be taken against the oxygen consumed or against the ammonia formed. The oxidation of the Rochelle salt occurs in two separate and approximately equal steps, and its course in each takes place in equal gradations, since in both it is graphically represented by straight lines. The quantity of salt completely oxidised amounts to about 75 per cent. of the whole. A similar proportion of the albumose was also found to be completely oxidised during its fermentation. It appears to the author as most probable from the results here referred to, and from others obtained from his experiments on dissolved gases and fermentative changes, already published in the *Transactions* and *Proceedings* of the Society, that the course and nature of physiological oxidation under aërobic conditions in solutions of similar composition will be found to be similar in nature for all unicellular organisms, and will only vary in degree as the supply of energy required for vital activity may vary for different organisms.—Prof. J. Joly, F.R.S., described some experiments on the influence of light on sedimentation.—Mr. Richard J. Moss gave an account of a deposit from a steam boiler fed with the water of the river Vartry with which Dublin is supplied.

Paris.

Academy of Sciences, June 2.—M. Bouquet de la Grye in the chair.—On Abelian functions with complex multiplication, by M. G. Humbert.—The experimental study of the dissociation of the constitutive elements of the energy used in motors employed in the production of positive work, by M. A. Chauveau. A comparison of the energy losses in the production of a given amount of work in the cases of inanimate and animate motors.—The mean distribution of the stellar images in the negatives of the map of the sky obtained at the Observatory of Toulouse, by M. B. Baillaud. The examination of forty-two negatives taken at Toulouse gave results agreeing with those recently published by Turner from observations made at Oxford.—The viscosity in the neighbourhood of the critical point, by M. P. Duhem. Theoretical considerations are developed which appear to render a satisfactory account of all the peculiarities presented by fluids in the neighbourhood of the critical point.—Magnetic work round the central *massif* of Madagascar, by M. P. Colin. The magnetic declination was determined at thirty-five stations, the inclination at twenty-four, and the intensity at twenty-five, the results being given in a table.—On the cranial characters and the affinities of Lophiodon, by M. Ch. Deperet.—On the constitution of nebulæ, by M. Charles Nordmann. It has recently been shown by the author that the hypothesis of an electromagnetic radiation from the sun is sufficient to explain in a simple manner many celestial and meteorological phenomena. The same hypothesis may also be extended to explain some of the phenomena exhibited by nebulæ.—Connection between the photographs of the solar corona taken at the total eclipse of May 18, 1901, and those of the entire solar chromosphere obtained on the same day at Meudon, by M. H. Deslandres. Among the results of the expedition to Sumatra organised by the Lick Observatory for the observation of the total eclipse of May, 1901, was a negative showing a good image of the solar corona. From this it appeared that in the latitude of 9°, in the north-east quadrant, there was a disturbance of the coronal rays special to this region. A comparison of this photograph with ordinary negatives of the solar photosphere taken at Greenwich and in India showed no sign of spot or even of special activity of the surface on May 17 and 18, but on May 19 a spot appeared in latitude 9°, in the north-east quadrant, which was remarked by Perrine as being intimately connected with the coronal disturbance. An examination of the negatives obtained at Meudon at the same time completely confirms this view.—On differential equations of the second order which admit of a finite continuous group of algebraic transformations, by M. Obriot.—On two problems in geometry, by M. Servant.—On a method of comparing motors of different powers, by M. Max. Ringelmann. The amount of fuel used per hour in internal combustion engines is regarded as a linear function of the power of the engine. Considerations deduced from this formula were applied to the discussion of the relative merits of alcohol motors at a recent competition.—On the specific inductive capacity of dielectrics at low temperatures, by MM. Jacques Curie and P. Compan. The soakage effects in glass tend to disappear at low temperatures. The dielectric capacity varies as a linear function of the temperature, the temperature coefficient being determined for glass, ebonite, mica and quartz.—The influence of the voltage in the formation of ozone, by M. A. Chassy. When the voltage is sufficiently high for the discharge to take place, the production of ozone is proportional to the square of the difference of potential which exists between the armatures.—Contribution to the study of the magnesium light. Measurement of the speed of combustion and the chronophotography of the light, by M. Albert Londe. It has usually been considered that the average time of exposure in taking a photograph by means of a magnesium flash light powder was of the order of 1/100 of a second. Exact measurements, however, have shown that the time is much slower, varying from ¼ to 1/25 of a second and averaging 1/10 of a second. This time is too great to permit of photographs of rapidly moving objects being made in this way.—Stereoscopic examination in radiology, and illusions in the appreciation of relief, by M. Th. Guilloz.—On the electrocapillary properties of organic bases and their salts, by M. Gouy.—Preparation of the anhydrous chlorides of samarium, yttrium and ytterbium, by M. Camille Matignon. The anhydrous chlorides of ytterbium and samarium were obtained for the first time by heating the hydrated salts in a current of hydrochloric acid gas.—Ammoniacal copper oxide, by M. Bouzat. Starting from copper hydrate and ammonia, the cuprammoniacal base is formed with a slight disengagement of heat, the base formed being much stronger than ammonia.—The action of monochloracetoacetic ester upon diazobenzene chlorides, by M. G. Favrel. The reaction is similar to that described by Japp and Klingemann for methylacetoacetic and ethylacetoacetic esters. The acetyl group is eliminated and hydrazones are formed.—On some salts of benzylamine, by M. René Dhommée. A description of the preparation and properties of the nitrate, sulphate, borate, chromate, oxalate and benzoate of benzylamine.—On *Staurosoma parasiticum*, by MM. M. Caullery and F. Mesnil.—Bacterial parasites of the intestine of the larvæ of *Chironomus plumosus*, by M. Louis Léger.—The quantitative variations of plankton in the lake of Geneva, by M. Emile Yung.—On the presence of osseous tissue in certain fishes of the Palæozoic strata of Canyon City, Colorado, by M. Leon Vaillant. In the fauna of these strata, which is one of the oldest known, not only are there undoubtedly vertebrates, but these were sufficiently advanced for the conjunctive tissue to have evolved up to a perfectly osseous state.—On the presence of the Lower Devonian in the Western Sahara, by M. G. B. M. Flamand.—On the seismic movements and magnetic disturbances at the commencement of May at the station of Uccle, Belgium, by M. Eug. Lagrange.—On the ashes from the eruptions of Mont Pelée in 1851 and 1902, by M. A. Lacroix. The products of the present eruption are different from those thrown out in 1851.—On vaccination against plague, cholera and typhoid, by M. Besredka.

DIARY OF SOCIETIES.

THURSDAY, June 12.

Royal Society, at 4.30.—(1) The Influence of an Atmosphere of Oxygen on the Respiratory Exchange. (2) The Influence of High Pressure of Oxygen on the Circulation of the Blood: L. Hill, F.R.S., and J. J. R. Macleod.—On the Parasitism of *Pseudomonas destructans* (Potter): Prof. M. C. Potter.—On the Toxic Properties of the Saliva of certain "Non-Poisonous" Colubrines: Prof. A. Alcock, F.R.S., and Dr. L. Rogers.—The Dissipation of Energy by Electric Currents induced in an Iron Cylinder when Rotated in a Magnetic Field: Prof. E. Wilson.

FRIDAY, June 13.

Royal Astronomical Society, at 5.—Observations of Jupiter made at Mr. Crossley's Observatory, 1901: J. Gledhill.—Further Observations of Nova Persei: A. Stanley Williams.—A Dark Reticle: C. S. Howe.—Ephemeris for Physical Observations of Mars, 1902–3: A. C. D. Crommelin.—On the Distribution of the Stars in the Cape Photographic Durchmusterung: A. M. W. Downing.—Reductions of Photographs of Swift's Comet (*a* 1899) taken at Cambridge Observatory with a Portrait Lens: L. N. G. Filon.—On the Principle of the Arithmetic Mean: H. C. Plummer.—Observations of the Total Eclipse of the Moon, 1902 April 22: Perth Observatory, Western Australia.—*Probable paper*:—Experimental Reduction of Photographs of Eros for the Determination of Solar Parallax, Second Paper: A. R. Hinks.

MONDAY, June 16

Royal Geographical Society, at 8.30.—Geographical and Archæological Explorations in Chinese Turkestan: Dr. M. A. Stein.

TUESDAY, June 17.

Zoological Society, at 8.30.—Certain Habits of Animals traced in the Arrangement of their Hair: Dr. Walter Kidd.—On the Carpal Organ in the Female *Hapalemur griseus*: F. E. Beddard, F.R.S.—On some Points in the Anatomy of the Alimentary and Nervous Systems of the Pedipalpi: R. I. Pocock.

Royal Statistical Society, at 5.

WEDNESDAY, June 18.

Royal Meteorological Society, at 4.30.—English Climatology, 1891–1900: F. Campbell Bayard.—Earth Temperatures recorded in Upper India: W. L. Dallas.

Royal Microscopical Society, at 8.—The Genus Synchæta; A Monographic Study with Description of Five New Species: C. F. Rousselet.

Chemical Society, at 5.30.—Elimination of a Nitro-group on Diazotization. Dinitro-*p*-anisidine: R. Meldola and J. V. Eyre.—A New Type of Substituted Nitrogen Chlorides: F. D. Chattaway.—The Colour-changes exhibited by the Chlorides of Cobalt and some other Metals, from the Standpoint of the Theory of Electro-affinity: F. G. Donnan and H. Bassett, jun.—An Accurate Method of determining the Compressibility of Vapours: B. D. Steele.—The Molecular Condition of Borax in Solution: H. S. Shelton.—Preliminary Notice of some New Derivatives of Pinene and other Terpenes: W. A. Tilden and H. Burrows.—The Preparation of Pure Chlorine and its Behaviour towards Hydrogen: J. W. Mellor and E. J. Russell.

THURSDAY, June 19.

Royal Society, at 4.30.—*Probable Papers*:—On the Correlation between the Barometric Height at Stations on the Eastern Side of the Atlantic: Miss F. E. Cave-Browne-Cave and Prof. K. Pearson, F.R.S.—Note on the Effect of Mercury Vapour on the Spectrum of Helium: Prof. J. Norman Collie, F.R.S.—On Colour-physiology of the Higher Crustacea: F. W. Keeble and Dr. F. W. Gamble.—The Seed-Fungus of *Lolium temulentum*. L., the Darnel, or Poisonous Rye-grass: E. M. Freeman.—On the Measurement of Temperature. Part I. On the Pressure Coefficients of Hydrogen and Helium at Constant Volume, and at different Initial Pressures: Dr. M. W. Travers and Dr. A. Jacquerod.—On the Measurement of Temperature. Part II. On the Vapour Pressures of Liquid Oxygen at Temperatures below its Boiling Point, and the Constant Volume Hydrogen and Helium Scales: Dr. M. W. Travers, G. Senter and Dr. A. Jacquerod.—On the Measurement of Temperature. Part III. On the Vapour Pressures of Liquid Hydrogen at Temperatures below its Boiling Point on the Constant Volume Hydrogen and Helium Scales: Dr. M. W. Travers and Dr. A. Jacquerod.

Linnean Society, at 8.—On Obesiella, a New Genus of Copepoda: Dr. W. G. Ridewood.—On Modern Methods in Mycology: Mr. G. Massee.—Further Observations on the Owls, especially their Skeleton: W. P. Pycraft.

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